

Bollgard® Cotton

Plant-Incorporated Protectant Active Ingredient *Bacillus thuringiensis* subsp. *kurstaki* Insect Control Protein

Pure form of the Plant-Incorporated Protectant, *Bacillus thuringiensis* subsp. *kurstaki* control protein as expressed in cotton cells.

Active Ingredient:

Bacillus thuringiensis subsp. *kurstaki* delta endotoxin protein as produced by the CryIA(c) gene and its controlling sequences in cotton 0.001 - 0.006%*

Inert:

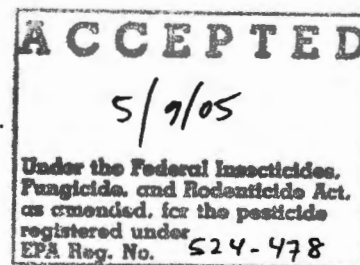
Substances produced by marker genes and their controlling sequences in cotton.....0.001 - 0.003%

* Percentage of total protein on a dry weight basis.

EPA REGISTRATION NUMBER 524-478
EPA ESTABLISHMENT NUMBER 524-MO-002

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Directions for Use

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

The subject registration will automatically expire on midnight September 30, 2006.

Cotton has been transformed to express the *Bacillus thuringiensis* subsp. *kurstaki* (B.t.k.) delta endotoxin protein for the control of the following lepidopteran cotton insect pests:

Cotton bollworm	<i>Helicoverpa zea</i>
Tobacco budworm	<i>Heliothis virescens</i>
Pink bollworm	<i>Pectinophora gossypiella</i>

Transformed cotton must be accompanied by the Grower Guide which contains the following:

1. The *B.t.k.* delta endotoxin protein expressed in this cotton controls the listed lepidopteran cotton insect pests.
2. Routine applications of insecticides to control these insects are usually unnecessary when cotton containing the *B.t.k.* delta endotoxin protein are planted.
3. Instruction for growers to read the product grower guide prior to planting; for information on planting, production and insect resistance management.
4. Not for commercial planting in the following counties in the Texas panhandle, which historically are not cotton-producing counties: Dallam, Sherman, Hansford, Ochiltree, Lipscomb, Hartley, Moore, Hutchinson, Roberts, and Carson.

The following information regarding commercial production must be included in the Grower Guide:

- a) No planting of Bollgard cotton is permitted south of Route 60 (near Tampa) in Florida.
- b) Commercial culture of Bollgard cotton is prohibited in Hawaii, Puerto Rico, and the U.S. Virgin Islands.

The following information regarding test plots and seed production must occur on bags of Bollgard cotton seed intended for these purposes:

- a) Test plots or breeding nurseries, regardless of the plot size, established in Hawaii must not be planted within 3 miles of *Gossypium tomentosum* and must be surrounded by 24 border rows of a suitable pollinator trap crop.
- b) Experimental plots and breeding nurseries of Bollgard cotton are prohibited on the U.S. Virgin Islands, and
- c) Test plots or breeding nurseries, regardless of plot size, established on the island of Puerto Rico may be established without restriction if insecticide applications are used to effectively mitigate gene flow. Otherwise, established test plots or breeding nurseries, regardless of plot size, established on the island of Puerto Rico must not be planted within 3 miles of feral cotton and must be surrounded by 24 border rows of a suitable pollinator trap crop.

The following information regarding commercial production must be included in the Grower Guide:

All growers of Bollgard cotton must employ one of the following structured refuge options:

1) External, Unsprayed Refuge

Ensure that at least 5 acres of non-*B.t.k.* cotton (refuge cotton) is planted for every 95 acres of Bollgard cotton. The size of the refuge must be at least 150 feet wide, but preferably 300 feet wide. This refuge may not be treated with sterile insects, pheromone, or any insecticide (except listed below) labeled for the control of tobacco budworm, cotton bollworm, or pink bollworm. At the pre-squaring cotton stage only, the refuge may be treated with any lepidopteran insecticide to control foliage feeding caterpillars. The refuge may be treated with acephate or methyl parathion at rates which will not control tobacco budworm or the cotton bollworm (equal to or less than 0.5 lbs active ingredient per acre). The variety of cotton planted in the refuge must be comparable to Bollgard cotton, especially in the maturity date, and the refuge must be managed (e.g., planting time, use of fertilizer, weed control, irrigation, termination, and management of other pests) similarly to Bollgard cotton. Ensure that a non-*B.t.k.* cotton refuge is maintained within at least 1/2 linear mile (preferably adjacent to or within 1/4 mile or closer) from the Bollgard cotton fields.

2) External Sprayed Refuge

Ensure that at least 20 acres of non-*B.t.k.* cotton are planted as a refuge for every 80 acres of Bollgard cotton (total of 100A). The variety of cotton planted in the refuge must be comparable to Bollgard cotton, especially in the maturity date, and the refuge must be managed (e.g., planting time, use of fertilizer, weed control, irrigation, termination, and management of other pests) similarly to Bollgard cotton. The non-*B.t.k.* cotton may be treated with sterile insects, insecticides (excluding foliar *B.t.k.* products), or pheromones labeled for control of the tobacco budworm, cotton bollworm, or pink bollworm. Ensure that a non-*B.t.k.* refuge is maintained within at least 1 linear mile (preferably within 1/2 mile or closer) from the Bollgard cotton fields.

3) Embedded Refuge

Plant at least 5 acres of non-*B.t.k.* cotton (refuge cotton) for every 95 acres of Bollgard cotton. The refuge cotton must be embedded as a contiguous block within the Bollgard cotton field, but not at one edge of the field (i.e., refuge block(s) surrounded by Bollgard cotton). For very large fields, multiple blocks across the field may be used. For small or irregularly shaped fields, neighboring fields farmed by the same grower can be grouped into blocks to represent a larger field unit, provided the block, exists within one mile squared of the Bollgard cotton and the block is at least 150 feet wide, but preferably 300 feet wide. Within the larger field unit, one of the smaller fields planted to non-*B.t.k.* cotton may be utilized as the embedded refuge. The variety of cotton planted in the refuge must be comparable to Bollgard cotton, especially in the maturity date, and the refuge must be managed (e.g., planting time, use of fertilizer, weed control, irrigation, and management of other pests) similarly to Bollgard cotton. This refuge may be treated with sterile insects, any insecticide (excluding foliar *B.t.k.* products), or pheromone labeled for the control of tobacco budworm, cotton bollworm, or pink bollworm whenever the entire field is treated. The refuge may not be treated independently of the surrounding Bollgard cotton field

in which it is embedded (or fields within a field unit), except only at the pre-squaring cotton stage, when the refuge may be treated with any lepidopteran insecticide to control foliage feeding caterpillars.

4) Embedded Refuge for Pink Bollworm- Only

Plant the refuge cotton as at least one single non-*B.t.k.* cotton row for every six to ten rows of Bollgard cotton. The refuge may be treated with sterile insects, any insecticide (excluding foliar *B.t.k.* products), or pheromone labeled for the control of pink bollworm whenever the entire field is treated. The in-field refuge rows may not be treated independently of the surrounding Bollgard cotton field in which it is embedded. The refuge must be managed (fertilizer, weed control, etc.) identically to the Bollgard cotton. There is no field unit option.

5) Community Refuge

This option allows multiple growers to manage refuge for external, unsprayed and external, sprayed refuge options or both. This option is not allowed for the embedded/in-field options. The community refuge for insect resistance management must meet the requirements of either the 5% external unsprayed refuge and/or the 20% sprayed option, or an appropriate combination of the two options.